Ahmed Eltawil

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Summary

Software Engineer with 4+ years of hands-on experience in Python, Node.js, and real-time systems. Expert in building scalable APIs, WebSocket communication, and database management for complex applications. Proven track record of delivering robust backend solutions for robotics and autonomous systems, with strong expertise in system integration and performance optimization.

Experience

Software Engineer
M&J Oil Services, ADNOC (Abu Dhabi National Oil Company) | 11/2023 – Present

- Developed backend systems and real-time WebSocket communication for autonomous robot control and monitoring
- Built scalable APIs for robot-to-web communication and system management
- Implemented real-time data streaming and control interfaces using WebSockets for industrial robotics applications.
- Designed and deployed system architecture integrating backend services with hardware controllers and databases.
- Created responsive web interface using React for real-time monitoring, teleoperation, and system control.
- Implemented security protocols (SSL/TLS) and managed deployment across cloud platforms with high availability.
- Collaborated with engineering teams to ensure system reliability and performance in mission-critical environments.

Tools & Tech: ROS, Python, FastAPI, WebSockets, NodeJs,React, MongoDB, MySQL, Redis, Docker, SSL/TLS, Git

Software Engineer
AM Audit - Dubai | 11/2022 - 11/2023

- Designed and developed scalable backend systems using Python (Django) and PostgreSQL for business automation solutions.
- Built automated deployment workflows and CI/CD processes to streamline software delivery and system updates.
- Collaborated with cross-functional teams on system architecture decisions and performance optimization.
- Led technical mentoring and code review processes to ensure quality standards and team development.
- Implemented RESTful APIs and database management with optimized CRUD operations.

Tools & Tech: Python, Django, PostgreSQL, Angular, Redis, Celery, Docker, GitLab CI

Software Engineer (Freelance)
Axis KYC | 05/2023 - 11/2023

- Developed backend services and API integrations for third-party applications and system enhancements.
- Built automated CI/CD pipeline for continuous deployment and maintained code libraries for consistent production.
- Supported system integration, validation, and performance optimization across multiple services.
- Implemented REST APIs and XML-based integrations for enhanced software functionality.

Tools & Tech: Python, Django, Angular, Redis, Celery, OpenAPI, REST Framework, XML

Associate Software Engineer
Thequa for Medical Industries Company, Egypt | 06/2020 - 09/2022

- Developed and implemented custom ERP system backend for manufacturing, warehouse, and accounting processes.
- Created APIs and database systems for stakeholder interfaces and automated reporting across departments.
- Built real-time monitoring dashboards and performance tracking systems for production data analysis.
- Designed backend architecture for manufacturing systems integration and automated workflow management.
- Deployed applications with comprehensive system training and ongoing technical support.

Tools & Tech: Python, Django, PostgreSQL, JavaScript, HTML/CSS, system integration

Technical Skills

- **Programming Languages:** JavaScript, TypeScript, Python, C++
- **Backend Technologies:** Django, FastAPI, REST APIs, NodeJs.
- **Databases:** MongoDB, PostgreSQL, MySQL, Redis.
- **Real-time Communication:** WebSockets, Socket.IO, real-time data streaming.
- **Frontend Technologies:** React, Angular, responsive web development.
- **DevOps & Deployment:** Docker, CI/CD pipelines, Git, cloud platforms.
- **System Integration:** API design, microservices, robotics communication systems.
- **Security:** SSL/TLS, authentication, data protection protocols.

Education

Bachelor of Engineering in Mechatronics and Automation Engineering
Ain Shams University, Egypt | 2020 | Graduation Project: A+

Exchange Program in Electrical Engineering
California State University, Los Angeles, USA | 2018 | GPA: 3.1

Projects

Autonomous Robot Backend System

- Developed production-ready backend infrastructure for autonomous industrial robot with real-time WebSocket communication.
- Implemented scalable API architecture for robot control, monitoring, and data management in hazardous environments.
- Built real-time streaming system for sensor data processing and autonomous navigation control.

Technologies: Node.js, WebSockets, Python, MongoDB, Docker, real-time systems

Algorithmic Trading Backend System

- Designed backend system for stock market investment platform with autonomous trading capabilities.
- Implemented API integrations for real-time market data and automated trading execution.
- Built scalable architecture with background job processing for financial data analysis.

Technologies: Django, Python, PostgreSQL, Redis, Celery, REST APIs

Honors & Certifications

- United States-Egypt Higher Education Initiative (HEI) Public University Scholarship
- Robotic Software Engineer Nanodegree, Udacity
- Docker Foundations Professional Certificate, LinkedIn Learning
- DevOps Professional Certificate, PagerDuty & LinkedIn
- React.js Essential Training, LinkedIn Learning
- Python Essential Training, LinkedIn Learning